

January 21, 1975

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TO: J. D. Hinman
FROM: L. L. Petersen
SUBJECT: Universal Manufacturing Company

Date: 1/14/74

Person Contacted
Mr. Bob Gossett, Production Manager.

Reason For Visit

To review the plant and the types of discharge Universal presently has in order to determine whether their effluent will meet Metro's discharge limitations.

Plating & Chrome Rooms

The wastes or rinses from their plating activity flow into trench drains which come together before being plumbed outside the building. These wastes are now being discharged into a small creek. The wastes have pH range of 4-5 and heavy metal concentration equal to sewer discharge limitations. The types of heavy metals in the Plating & Chrome rooms are tin, lead, hexivalent chrome, copper, besides various acids, alkaline rinses, hot and cold water rinses. This small creek joins others before going into Bear Creek.

Copper Etching Room

The copper etch machine is one of the older models. It leaks ammonia etchant and does not have any recirculating rinses. The ammonia etchant is rinsed off the circuit boards, and is discharged to a septic tank. The drain field is now plugged, so the effluent overflows the septic tank. It is collected in a small holding pond before over flowing and running across a field into the same creek which receives the Plating & Chrome room effluent.

Some of the copper settles out as the pH drops. Mr. Gossett stated that the copper in the etchant solution is tied up in a double ammonia salt and the copper will settle out as the ammonia gas escapes to the atmosphere. The copper concentration will get as low as 3 to 4 ppm, but it will not drop any lower. This is because the copper ion is tied up with chelating agents.

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Universal Manufacturing Company has taken samples of the ammonia etchant rinse waters coming out of the holding pond. The copper concentration was found to be 1 to 2 ppm during the winter and up to 30 ppm in dry weather.

Other Wastes

Methylene chloride is used to clean off the gelatin material on the circuit boards. Universal Manufacturing Company still uses trichloroethylene in the vapor degreaser.

Concentrated Wastes

Lidcoa collects and hauls away the following types of concentrated wastes; ammonia etchant solution, trichloroethylene, methylene chloride and any other types of concentrated plating waste available.

Conclusion

1. Universal Manufacturing Company has just received their 60 day notice to hook up to the local sewer system. In the meantime Mr. Gossett will be working on his pretreatment system.
2. We discussed the plumbing site and requested that the pretreatment equipment and sampling site be installed before connection to the sewer system.
3. Types of wastes:
 - a. Plate & chrome rooms-heavy metals and low pH.
 - b. Ammonia etchant rinse-high in copper content with alkaline condition.
4. Suggestions:
 - a. Install a new etchant machine that has several recirculating rinses.
 - b. Installation of a rental ion exchange equipment for copper removal.
 - c. Chemical precipitation in a settling tank before the final discharge to the sewer system.

LLP:dsp